

	SL No of QP 9820
Unique Paper Code	: 2493010011
Name of the course	: B.Sc. (Hons.) Biochemistry (NEP / CBCS-LOCF)
Name of the Paper	: Molecular Basis of Non-Communicable Human Diseases
Semester	: VII
Duration	: 2 hours
Maximum Marks	: 60 marks

Instructions for Candidates

There are 6 questions.

Attempt any 4 questions. All questions carry equal marks.

Question no. 1 is compulsory.

1(a) Justify the statement (**any 6**):

- (i) Beta thalassemia minor individuals show enlarged bone marrow and spleen along with iron overload.
- (ii) LH: FSH ratio is often elevated in PCOS.
- (iii) Patients who have Bulimia can get an electrolyte imbalance.
- (iv) Increased oxidative stress predisposes itself to atherosclerosis.
- (v) Tri-nucleotide expansion of the Huntington gene leads to misfolding of the protein.
- (iv) The BUN: Creatinine goes beyond 20:1 in prerenal acute renal failure.
- (vii) Mutation in the Von Willebrand factor leads to hemophilia.

(b) Expand the following and explain the following conditions in brief (**any 2**):

- (i) COPD
- (ii) CFTR
- (iii) DVT

(12, 3)

2. Explain the molecular basis of the following diseases (any 5)

- (i) Huntington's Chorea
- (ii) Thalassemia
- (iii) Ischemic heart disease
- (iv) Alkaptonuria
- (v) Maple syrup urine disease
- (vi) Long QT syndrome

(3x5)

3(a) Draw a schematic diagram showing the malignant transformation of carcinoma from a normal cell.

- (b) Name a virus along with its 2 oncogenes responsible for causing Cervical Cancer? How do these oncogenes affect the host cell?
- (c) What are the different types of Acute kidney failure? List a specific causative factor for each type of acute kidney failure.
- (d) What do you mean by Biomarkers? Write biomarkers for breast, prostate & liver cancer.

(4, 4, 4, 3)

4. Differentiate between the following (**any 5**):

- (a) Classical and non-classical hemophilia
- (b) Tumor-specific marks and tumor-associated markers
- (c) Heart attack and heart failure
- (d) COPD and ARDS
- (e) VIL and VILI
- (g) Chronic Bronchitis and emphysema

(3x5)

5A. What do you mean by misfolded protein diseases? Write the causes, symptoms and treatment of Alzheimer's disease.

B. Discuss the biochemical basis and features of following diseases:

- (i) Sickle cell anemia
- (ii) Hemophilia
- (iii) Cystic fibrosis

(6, 9)

6. Write short notes on the following:

- (a) Prion diseases
- (b) Irritable Bowel Syndrome
- (c) Hypercholesterolemia
- (d) Hyperplastic Obesity
- (e) PKU

(3x5)